Application/Control Number: 10/737,116

CLMPTO 09/07/04 CM.

CLAIMS 1-23. (CANCELLED)

24. A method of forming an integrated circuit device comprising:

providing a semiconductor substrate having a first portion and a second portion;

forming a gate stack comprising:

a gate dielectric formed over the first portion of the semiconductor substrate; and

a gate electrode formed over the gate dielectric;

forming a first patterned anti-reflective coating (ARC) over the gate stack;

forming a non-volatile memory stack comprising:

a charge storage layer formed over the second portion of the semiconductor substrate; and

a first dielectric layer formed over the charge storage layer;
forming a second patterned ARC over the non-volatile memory stack;
forming a second dielectric layer over the gate stack and the non-volatile memory stack;

removing portions of the second dielectric layer to form first spacers
adjacent the gate stack and the non-volatile memory stack;
removing the first patterned ARC and the second patterned ARC after
removing portions of the second dielectric layer;
forming a first channel under the gate stack; and
forming a second channel under the non-volatile memory stack.

25. The method of claim 24, further comprising:

forming a third dielectric layer over first spacers;

forming a fourth dielectric layer over the third dielectric layer;

removing portions of the third dielectric layer to form second spacers

adjacent the first spacers; and

removing portions of the fourth dielectric layer to form third spacers adjacent the second spacers.

Application/Control Number: 10/737,116

- 26. The method of claim 25, wherein removing the first patterned ARC and the second patterned ARC is before forming a third dielectric layer and forming a fourth dielectric layer.
- 27. The method of claim 26, wherein the second dielectric layer is densified prior to forming first spacers and removing the first patterned ARC and the second patterned ARC is a wet process.
- 28. The method of claim 27, wherein the second dielectric layer is an oxide, the third dielectric layer is an oxide, and the fourth dielectric layer is a nitride.
- 29. An integrated circuit device comprising:
 - a semiconductor substrate;
 - a stack comprising:
 - a patterned dielectric layer formed over the semiconductor substrate;
 - a patterned conductive layer formed over the patterned dielectric layer;

- a first sidewall; and
- a second sidewall, wherein the second sidewall is adjacent the first sidewall;
- a first electrode region within the semiconductor substrate and adjacent the first sidewall;
- a second electrode region within the semiconductor substrate and adjacent the second sidewall;
- a channel region between the first electrode region and the second electrode region and under the stack;
- oxide spacers adjacent the first sidewall and the second sidewall, wherein the oxide spacers have a first height; and
- nitride spacers adjacent the first oxide spacers, wherein the nitride spacers have a second height which is less than the first height.
- 30. An integrated circuit device comprising:
 - a semiconductor substrate having a top surface;
 - a stack formed on the semiconductor substrate comprising:
 - a first layer;
 - a second layer formed over the first layer;
 - a first sidewall; and
 - a second sidewall opposite the first sidewall;
 - spacers adjacent the first sidewall and the second sidewall, wherein a first

Application/Control Number: 10/737,116

portion of the top surface of the semiconductor substrate is under the spacers, a second portion is under the stack, and the first portion is substantially co-planar with the second portion;

- a first doped region within the semiconductor substrate and adjacent the first sidewall;
- a second doped region within the semiconductor substrate and adjacent the second sidewall; and
- a channel region between the first doped region and the second doped region and within the semiconductor substrate.
- 31. The integrated circuit device of claim 30, wherein a first portion of the first and doped region and a second portion of the second doped region are under the gate dielectric.